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Peripheral Giant Cell Granuloma in Posterior Maxilla: A Case Report

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Abstract **Case Report**

The peripheral giant cell granuloma is a tumour like growth of the oral cavity. It has an unknown aetiology but believed to be a reactive lesion caused by local irritation or trauma. This article reports a case of peripheral giant cell granuloma in the edentulous region of the left posterior maxilla in a 35-year-old female patient. The lesion was sessile, measuring more than 15x15 mm in size, colour matching the adjacent mucosa involving the edentulous area distal to left upper second premolar extending till the edentulous region of the second molar. The radiograph shows peripheral cuffing of the bone. An excisional biopsy was performed. Histopathological appearance shows a fibro cellular stroma with numerous proliferating multinucleated giant cells scattered throughout the lesion. A diagnosis of peripheral giant cell granuloma was given. The patient was followed up for a year with no recurrence.

Keywords: Peripheral giant cell granuloma, Posterior maxilla, Edentulous.

INTRODUCTION

The peripheral giant cell granuloma [PGCG] is a tumour like growth of the oral cavity. It exclusively occurs on the gingiva or edentulous alveolar ridge, presenting as a red or red-blue nodular mass [1]. It presents itself as a pedunculated or sessile lesion that appears to be emerging from deeper in the tissue than many other superficial lesions of this area. Thus it seems to originate from either periodontal ligament or mucoperiosteum [2]. It generally occurs in females at the fourth to sixth decades of life [3]. The lesion varies in size ranging from 0.5cm to 1.5 cm in diameter. It is more common in the mandibular arch than in the maxillary arch and frequently occurs anterior to the permanent first molars [2, 4]. The aetiology of this lesion continues to be not exactly outlined. Gottsegen [5] suggested the event of peripheral giant cell granuloma typically after periodontal surgery. However, some investigators think about it to arise in response to local irritating factors like tooth extractions, ill-fitting prostheses, poor restorations, collections of food remnants and calculus [6]. The present case is a rare finding of peripheral giant cell granuloma in the posterior maxillary region distal to the left second premolar.

CASE REPORT

A 35yr old female patient reported to the Outpatient Department of Periodontics, Government Dental College and Hospital, Hyderabad, with a chief complaint of a swelling in the left upper back tooth region for eight months. The patient noticed a small swelling eight months before, which had enlarged to attain the present size.

There was no history of pain. The patient gives an account of bleeding gums occasionally while eating. On intraoral examination, a sessile, well- circumscribed gingival growth measuring more than 1.5 x 1.5 cm, was observed in the upper left maxillary region distal to the second premolar involving the edentulous region of first and second molars (Figure 1). The colour of the gingival lesion matched the adjacent mucosa and did not show any signs of redness or inflammation. On palpation, the lesion was firm in consistency, non-tender and non-reducible. Extraoral examination of the patient revealed no abnormality. Medical and family history was non-contributory.

Fig-1: Intraoral photograph showing the soft tissue lesion in the edentulous region distal to 25

On radiographic examination, the intraoral periapical radiograph showed superficial erosion of the bone with pathognomonic peripheral 'cuffing' (Figure 2). Based on clinical examination, a differential diagnosis of oral fibroma, peripheral ossifying fibroma and pyogenic granuloma was established.

Fig-2: Intraoral radiograph shows ragged loss of bone with peripheral cuffing.

An excisional biopsy of the lesion was performed under local anaesthesia. After adequate infiltration with 2% Lignocaine solution containing 1:80,000 adrenaline, the lesion was completely excised along with a margin of normal tissue using no. 15 Bard Parker blade (Figure 3). The tissue was immediately washed with saline and immersed in 10% formalin for histopathological examination. Haemorrhage was controlled in the site and a periodontal pack was placed (Figure 4).The Patient was prescribed pain killers and recalled after two weeks for evaluation of healing.

Fig-3: Intraoperative image showing the site after excision of the lesion

Fig-4: Postoperative image showing periodontal pack placement

On histopathological examination, the Hematoxylin and Eosin stained sections showed fibrocellular stroma with numerous proliferating multinucleated giant cells scattered throughout the lesion. These cells show 10-12 nuclei which are large vesicular with some giant cells showing small pyknotic nuclei over a background of plump ovoid and spindle-shaped fibroblasts. Foci showing irregular bony trabeculae, moderate lymphocytic infiltrate and hemorrhagic areas are also seen. The overlying epithelium is a parakeratinized stratified squamous type which is ulcerated at some foci. (Figure 5) The histopathologic diagnosis was given as peripheral giant cell granuloma.

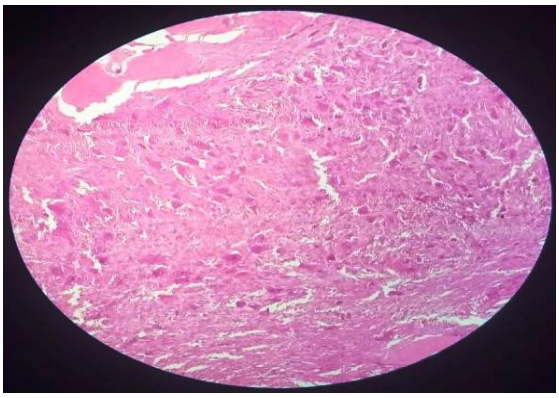

Fig-5: Hematoxylin and Eosin stained section showing fibro cellular stroma with numerous proliferating multinucleated giant cells

The postoperative healing was uneventful (Figure 6). The patient was followed up for one year with a recall every three months. No recurrence was observed during the period (Figure 7).

Fig-6: Image showing healing after two weeks

Fig-7: Image showing healing after one year

DISCUSSION

Peripheral giant cell granuloma may be a benign exophytic lesion, previously thought to be reparative nature, and was named Giant cell reparative granuloma by Jaffe [7]. Since the lesion does not appear to be genuinely a 'reparative' one, this term reparative granuloma has been deleted from the name in the past few years. The preferential location of the lesion, according to Shafer and Giansanti, is in the incisor and canine region. In the present case, the lesion occurred in the posterior region of the maxilla which is not a frequent location. They differ in appearance from smooth, regularly outlined lesions to irregularly shaped, multilobulated projections with surface indentations [8]. The lesion may present as a vascular, ovoid, or fusiform swelling of the crest of the ridge in the edentulous patient, seldom exceeding 1–2 cm in diameter. There may be a granular mass of tissue that appears to be growing from the tissue covering the ridge's slope. The colour of these lesions varies, although they are frequently comparable to lesions found in dentulous patients [2]. PGCG is made up of nodules of multinucleated giant cells on a backdrop of plump ovoid and spindle-shaped mesenchymal cells and extravasated RBCs on histological examination. The nuclei in the giant cells can be as few as a few dozen or as many as several dozen. Some have large, vesicular nuclei, while others have small, pyknotic nuclei. The giant cell's origin is unknown. The giant cells are derived from osteoclasts, according to ultrastructural and immunological studies [9, 10]. Willing [11] discovered that stromal cells secrete several cytokines and differentiation factors, such as monocyte chemoattractant protein-1 (MCP1), osteoclast differentiation factor (ODF), and macrophage-colony stimulating factor (M-CSF). These molecules are monocyte chemoattractants and are required for osteoclast differentiation, implying that the stromal cell stimulates blood monocyte immigration into tumour tissue and increases their fusion into osteoclast-like multinucleated giant cells. In general, radiographic findings are non-specific. When the granuloma is found coupled with the teeth, however, they might sometimes demonstrate the superficial deterioration of the alveolar margin or crest of the interdental bone. When a granuloma is accompanied by an edentulous ridge, it is characterized by superficial bone degradation and underlying bone "cuffing." As was the case in the present instance, the recommended treatment for peripheral giant cell granuloma is to remove the entire base of the tumour along with any local aggravating factors. In some circumstances, extraction of neighbouring teeth may be required to guarantee full resection [12]. Recurrence can result from improper elimination of the underlying source of irritation or failure to include the periosteum or periodontal ligament during excision, necessitating subsequent re-excision.

CONCLUSION

The management of gingival overgrowth requires a precise diagnosis based on clinical, radiographic, and histological testing. The clinician should also consider peripheral giant cell granuloma, though not frequent, may occur in the posterior maxillary region as well. Because of the rapid growth pattern and potential to resorb bone with subsequent tooth movement, treatment should include surgical excision of the growth, including its base, and the removal of causative causes.

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